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ABSTRACT

This study assessed whether or not the initial attitudes and beliefs of a behaviorally homogeneous group can be used as indicators of future smoking behavior. Ss included seventh graders who classified themselves as never-smokers on an initial survey and who participated in all three surveys over a 2-year period. The initial survey consisted of a 44-item attitude-belief form similar to the Likert form. Ss later classified themselves according to their subsequent smoking behavior as either smoker, ex-smoker or never-smoker. An analysis of variance technique was used to determine whether attitude-belief differences existed among the three groupings. Results indicated that female never-smokers who remained never-smokers had more favorable attitudes toward nonsmoking than those who became smokers or ex-smokers. Significant differences for male data were found on the pleasure, influence, and health disease factors. These results suggest that attitudes and beliefs of initial never-smokers may serve as indicators of future behavior. It appears, also, that items of an affective rather than a cognitive domain are more useful indicators. (Author/JB)

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THE UTILIZATION OF ATTITUDES AND BELIEFS AS INDICATORS OF SUBSEQUENT SMOKING BEHAVIOR

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Introduction

It is no longer questionable whether or not cigarette smoking is a causative agent in lung cancer, as well as a variety of other diseases. Since the publication of the Surgeon General's Report in 1964, numerous research studies have been conducted in the United States and abroad which strengthen the conclusions of the 1964 report.[1] Despite the accumulation of conclusive evidence on the ill effects of cigarette smoking and the rise in death and disability statistics associated with it, millions of people in the U.S. continue to smoke.

Research Studies to date have discovered a great deal of information about smokers and related personal, social, and cultural factors, but as yet Davis[2] mentioned we are not able to say how they can best be used in an intervention process. Due to the difficulties in attempting to modify smoking behavior of adults and to the fact that well over half of the young adults who now smoke established the habit in their teens, educational programs are being directed to reach the young before they start.[3]

As part of the national effort to bring about significant research and program development designed to prevent and modify harmful smoking behavior, the University of Illinois Anti-Smoking Education Study was initiated in September, 1966, under a contract with the National Clearinghouse and was conducted over a three year period - 1966-1969. Longitudinal type studies such as the Illinois Study appear necessary in order to observe behavior changes over a period of time in hopes of identifying variables that will serve as indicators of subsequent smoking behavior. This particular study was an outgrowth of the University of Illinois Anti-Smoking Study.

Purpose

The major purpose of this study was to assess if the initial attitudes and beliefs of a behaviorally homogeneous group could be utilized as indicators of subsequent smoking behavior. Specifically, the key question investigated was to assess if the initial attitudes and beliefs of a group of original never smokers in the seventh grade in 1966 were indicative of future smoking behavior in 1968. That is, based on the subsequent smoking behavior classifications in 1968, were there any significant differences noted among the initial attitude-belief scores of an originally homogeneous group in 1966.

Procedure

The survey instrument employed for purposes of this study was the survey form of the University of Illinois Anti-Smoking Education Study. Part IV of the survey form, a forty-four item Likert type attitude-belief scale, was used to assess if the initial attitudes and beliefs of a behaviorally homogeneous group could be utilized as indicators of subsequent smoking behavior.

Regarding statistical procedures, all forty-four items on the attitude-belief scale were not considered in the assessment of an individual's initial attitudes and beliefs. To reduce matrix dimensionality, a factor analysis was employed whereby items that were highly correlated with one another were grouped together and factors were generated. Five factors (pleasure, influence, exemplar, health and disease, and future health) were derived from the attitude-belief scale through the varimax factor rotation method. For each factor, only

those items with the highest loading were included in the study. One factor, the future health factor, was not utilized since only two of the forty-four items had high loadings.

According to subsequent behavioral groupings in 1968 (never smokers, ex-smokers, smokers), means scores were procured for each factor which were then subjected to an analysis of variance technique to assess if initial attitude-belief differences existed among the three future behavioral groupings.

With respect to the experimental procedures, the survey instrument was administered three times during a two year period (1966-1968). The initial survey was administered in October, 1966, to 23,724 students in grades seven through twelve in the Rockford-Winnebago County area of Northern Illinois. The second survey took place in 1967 during the months of April and May. Two years later, in the fall of 1968, administration of the third survey form occurred.

The students included in this particular investigation were those seventh graders who classified themselves as never smokers on the initial survey in 1966 and who participated in all three surveys over the two year period. A total of 1,228 females and 868 males met these criteria. Thus, the study population was comprised of 2,096 students.

Discussion of Results

Data were treated by sex. Table 1 reveals the mean scores and analysis of variance results on the four factors for the seventh grade girls classified as

original never smokers in 1966. Of the 1,228 girls, 766 or 62.4% remained never smokers in 1968, 324 or 26.4% classified themselves as ex-smokers, and 138 or 11.2% changed their behavior to that of a smoker. Thus, 37.6% of the girls had changed their behavior during the two year interval. The mean attitude-belief scores and analysis of variance results for the seventh grade males classified as original never smokers in 1966 are shown in Table 2. Out of a total of 868 males, 524 or 60.4% maintained the behavior of a never smoker, 262 or 30.2% categorized themselves as ex-smokers, and 82 or 9.4% became smokers in 1968. Similar to the findings in the female sample, 39.6% of the males had changed their behavior during the interim period.

In reference to the female data, significant differences were revealed in the initial attitude-belief mean scores on two factors, the pleasure and the exemplar factors. For the male sample, differences in initial attitudes and beliefs were found to be significant on three factors, the pleasure, influence, and health and disease factors.

For the pleasure factor, differences were shown to be significant at the .01 level in both the male and female samples. In each instance, the mean scores for the factor were in the direction of an unfavorable attitude and belief towards smoking or in the direction of a non-smoking position on the survey instrument, however, there were differences in the degree of their unfavorability or in the degree of their respective non-smoking positions.

It should be noted that a higher mean score was indicative of a non-smoking position on the survey instrument or an unfavorable attitude and belief.

In both the male and female samples, those original never smokers in 1966 that remained never smokers in 1968 had the highest mean score and thus were initially more orientated toward a non-smoking behavior. Those individuals who changed their behavior to that of a smoker in 1968 revealed the lowest mean score thereby originally being less orientated toward a non-smoking position.

The previous findings suggest that items within the pleasure factor differentiate between the never smoker and smoker and therefore may be utilized as indicators of subsequent smoking behavior. It appears from these results that anti-smoking educational programs should emphasize elements in the affective domain involving the feelings and emotions of the individual. In view of the adverse effects of smoking, the idea must be dispelled that it is a pleasurable relaxing pastime.

The seventh grade girls also revealed significant differences in attitudes and beliefs on the exemplar factor. Analysis of the data on this factor revealed that the girls that remained never smokers in 1968 had the highest mean score suggesting that they felt more strongly that adults should set a good example by not smoking as compared to the other two subsequent behavioral groupings. Perhaps these individuals had persons, such as parents or teachers, that assumed the exemplar role by not smoking.

These findings indicate that despite the known difficulty in curtailing the smoking habit among adults, anti-smoking educational programs must be directed toward adults as well as youth if the maximum benefits are to be derived from a program designed to prevent or curtail the smoking habit. The exemplar role of adults must be encouraged to influence and reinforce a non-smoking behavior among youth. An atmosphere must be created that inhibits the initiation or continuation of the cigarette smoking habit.

Besides the pleasure factor, significant differences for the male sample were also found on the influence and health and disease factors. With regard to the influence factor, the mean scores for all three behavioral classifications in 1968 were slightly in the direction of a non-smoking attitude, however, group 1, the never smokers remaining never smokers in 1968, had the highest mean score indicating that initially they were more unfavorable in their attitudes and beliefs than either the future ex-smokers or smokers.

Groups 2 and 3, the ex-smoker and smoker categories in 1968, showed identical mean scores (18.40) suggesting that both groups had the same initial attitudes and beliefs in 1966 regarding items of an influential nature such as "Teenagers smoke mainly because their parents smoke." This observation reveals the complexity of human behavior as well as the limitations of attitudes and beliefs in the assessment of subsequent smoking behavior, as both groups held identical attitudes and beliefs and both groups did take up the smoking habit, however, influences intervened causing one group of individuals to quit.

The influence factor, therefore, distinguishes between those that will continue a non-smoking behavior and those that will start smoking, however, the items fail to differentiate between those individuals who will remain smokers and those who will become ex-smokers.

With reference to factor four, the health and disease factor, all of the mean scores were in the direction of a non-smoking position, therefore, all three of the future behavioral groupings believed that cigarettes were harmful to one's health, yet differences existed in the strength of their beliefs. As would be expected, the never smokers that remained never smokers held stronger beliefs than those never smokers who changed their behavior to that of a smoker in 1968.

Further analyses revealed that the mean score (16.63) of those that became ex-smokers in 1968 was only .07 less than the mean score (16.70) of those that remained never smokers in 1968. This observation suggests that the two groups were nearly identical in their initial attitudes and beliefs, yet 262 or approximately one-fourth of the original group (868) started smoking during the two year period, despite the fact that they believed cigarette smoking was harmful to one's health.

These results are indicative of the complexity of human behavior, as it is possible for a person to believe that smoking is harmful to him, yet initiate the habit in spite of his factual information. It appears that additional variables, such as personal disposition and social factors, including attitudes toward parents and peers exist which cause a person to initiate the smoking habit in spite of his scientific knowledge. Educational programs aimed at the

prevention or cessation of smoking must therefore do more than simply bridge the gap between scientific knowledge and the laymen. The various psychological motivations impelling individuals to smoke must be taken into consideration.

Although two groups in 1968, the never smokers and ex-smokers, revealed nearly identical attitude-belief scores, it might be suggested that even though one-fourth of the original group started smoking during the two year period, they did quit and reversed their behavior to that of an ex-smoker in 1968, indicating that initial attitudes and beliefs on the health and disease factor might nevertheless, be utilized to assess future behavior, although experimentation occurred during the two year period.

In conclusion, the hypothesis of this investigation that there is no significant difference in the initial attitudes and beliefs of a group of original never smokers in the seventh grade in 1966 and subsequent smoking behavior in 1968 may be rejected, as differences were found to be significant on five factors. The results suggest that the initial attitudes and beliefs may serve as indicators of subsequent smoking behavior. It appears that items of an affective rather than a cognitive domain are more useful indicators. However, the complexity of the influencing factors of a smoking or a non-smoking behavior is manifested, with the exception of the pleasure factor, by the existence of different factors being significant for different sexes at the same grade level.

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